

## CLAIMS

1. A system for wide field imaging of body lumens comprising  
5                   at least one imager; and  
                  an optical system having a plurality of optical paths for imaging  
                  images from within the body lumen onto the at least one imager.
2. The system according to claim 1 and further comprising a memory  
                  device for storing images.
- 10 3. The system according to claim 1 further comprising at least one  
                  transmitter for transmitting signals from the imager.
4. The system according to claim 3 further comprising a receiving  
                  system for receiving the signals.
5. The system according to claim 4 wherein the receiving system  
15                   comprises a recording and/or processing device.
6. The system according to claim 5 wherein the receiving system  
                  comprises a combiner adapted to combine a plurality of images into a  
                  single image.
7. The system according to claim 1 comprising a single imager and a  
20                   single transmitter.

8. The system according to claim 1 comprising a plurality of imagers and a single transmitter, said plurality of imagers each having a respective optical path.

9. The system according to claim 3 wherein the transmitter transmits in a single channel.

10. The system according to claim 3 wherein the transmitter transmits in multiple channels.

11. The system according to claim 8 wherein the imagers and their respective optical paths are partitioned off from each other.

12. A device for imaging a body lumen comprising a system which comprises at least one imager and an optical system having a plurality of optical paths for imaging images from within the body lumen onto the at least one imager.

13. The device according to claim 12 further comprising an optical window.

14. The device according to claim 12 wherein the imager further comprises a memory device for storing images.

15. The device according to claim 12 wherein the system further comprises at least one transmitter for transmitting signals from the imager.

16. The device according to claim 15 wherein the system further comprises a receiving system for receiving the signals from the transmitter.
17. The device according to claim 16 wherein the receiving system  
5 comprises a recording/processing device.
18. The device according to claim 17 wherein the receiving system comprises a combiner adapted to combine a plurality of images into a single image.
19. The device according to claim 12 wherein the system comprises a  
10 single imager and a single transmitter.
20. The device according to claim 12 wherein the system comprises a plurality of imagers and a single transmitter, said plurality of imagers each having a respective optical path.
21. The device according to claim 15 wherein the transmitter transmits in  
15 a single channel.
22. The device according to claim 15 wherein the transmitter transmits in multiple channels.
23. The device according to claim 20 wherein the imagers and their respective optical paths are partitioned off from each other.
- 20 24. The device according to claim 12 wherein the device is configured for being inserted into a body lumen.

25. The device according to claim 24 wherein the body lumen is the gastrointestinal tract.

26. A capsule comprising an optical window and a system which comprises at least one imager and an optical system having a plurality of optical paths for imaging images from within the body lumen onto the at least one imager.

27. The capsule according to claim 26 wherein the system is located behind the optical window.

28. An endoscope comprising a system which comprises at least one imager and an optical system having a plurality of optical paths for imaging images from within the body lumen onto the at least one imager.

29. A method for wide field imaging of body lumens comprising the steps of:

inserting into a body lumen a system comprising at least one imager and an optical system having a plurality of optical paths for imaging images from within the body lumen onto the at least one imager; and

obtaining a plurality of images from within the body lumen from the plurality of optical paths.

30. The method according to claim 29 further comprising the step of combining the plurality of images into a single image.

31. The method according to claim 29 further comprising the step of storing the obtained images in a memory device for further analysis.

32. The method according to claim 29 further comprising the step of transmitting signals from the imager.

5 33. The method according to claim 32 further comprising the step of receiving the transmitted signals.

34. The method according to claim 32 wherein the signals are transmitted over a single channel.

10 35. The method according to claim 32 wherein the signals are transmitted over multiple channels.

36. The method according to claim 29 wherein inserting the system into a body lumen is by swallowing.

37. A method for wide field imaging of the gastrointestinal tract comprising the steps of:

15           inserting into the gastrointestinal tract a device comprising a system which comprises at least one imager and an optical system having a plurality of optical paths for imaging images from within the body lumen onto the at least one imager; and

20           obtaining a plurality of images from within the gastrointestinal tract from the plurality of optical paths.

38. The method according to claim 37 wherein the step of inserting into the gastrointestinal tract a device is achieved by swallowing the device.

39. A method for wide field imaging of the gastrointestinal tract comprising the steps of:

inserting into the gastrointestinal tract an endoscope comprising a system which comprises at least one imager and an optical system having a plurality of optical paths for imaging images from within the body lumen onto the at least one imager; and

obtaining a plurality of images from within the gastrointestinal tract from the plurality of optical paths.

40. A transmitter for transmitting signals from within a body lumen, said transmitter operable with a system comprising at least one imager and an optical system having a plurality of optical paths for imaging images from within the body lumen onto the at least one imager.

41. The transmitter according to claim 40 wherein the transmitting channel is a radio channel.

42. The transmitter according to claim 40 wherein the signals are digital signals.

43. The transmitter according to claim 40 wherein the signals are analog signals.

44. The transmitter according to claim 40 having a single transmitting channel.

45. The transmitter according to claim 44 further comprising a multiplexer.

5 46. The transmitter according to claim 40 having multiple transmitting channels.

47. The transmitter according to claim 46 transmitting in the 200 - 500 MHz range.

10 48. A receiving system for receiving signals from a transmitter transmitting signals from within a body lumen, said receiving system operable with a system comprising at least one imager and an optical system having a plurality of optical paths for imaging images from within the body lumen onto the at least one imager.

15 49. The receiving system according to claim 48 comprising a recording and/or processing device.

50. The receiving system according to claim 48 further comprising a combiner adapted for combining a plurality of images into a single image.